



Amendments to the Claims:

Cancel claims 2, 15, 16 and 23. The listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. **(Currently Amended)** A single layer microfluidic fluid mixer comprising:

a fluid routing device having:

a first channel having a cross-section of a first aspect ratio and a first depth; and

a second channel having a second cross-section of a second different aspect ratio and a second different depth, wherein the second channel intersects with the first channel from a first location to a second location, the first and second locations having different transverse positions and different longitudinal positions within the first channel and wherein the cross-section of the intersecting first and second channels is T-shaped for at least a portion of the intersection; and

fluid supply means for supplying to each channel fluid to be mixed.

2. **(Canceled)**

3. **(Previously presented)** A mixer according to claim 1, wherein the first and second channels are elongate in cross-section.

4. **(Previously presented)** A mixer according to claim 1, wherein the aspect ratio of the first channel is a 90° rotation of the aspect ratio of the second channel.

5. **(Previously presented)** A mixer according to claim 1, wherein the first and second channels have substantially the same cross-sectional area.
6. **(Previously presented)** A mixer according to claim 1, wherein the total cross-sectional area of the first and second channels is substantially constant.
7. **(Previously presented)** A mixer according to claim 1, wherein the aspect ratios of the two channels are in the range between 1.5:1 and 10:1.
8. **(Previously presented)** A mixer according to claim 7, wherein aspect ratios of the two channels are in the range between 3:1 and 6:1.
9. **(Previously presented)** A mixer according to claim 1, wherein the second channel is separate from the first channel until the first location.
10. **(Previously presented)** A mixer according to claim 1, wherein the second channel continues beyond the first channel after the second location.
11. **(Previously presented)** A mixer according to claim 1, wherein the second channel extends only between the first and the second location.
12. **(Previously presented)** A mixer according to claim 1, wherein the second channel is formed by a gradual change in aspect ratio from the first location.

13. **(Previously presented)** A mixer according to claim 1, further comprising, at the first location, a step which signifies the start of the second channel.

14. **(Previously presented)** A mixer according to claim 1, further comprising, at the second location, a step which indicates the end of the second channel.

15. **(Canceled)**

16. **(Canceled)**

17. **(Previously presented)** A mixer according to claim 10, wherein the first and second channels are recombined.

18. **(Previously presented)** A mixer according to claim 17, wherein the first and second channels pass through a respective intermediary channel prior to recombination.

19. **(Previously presented)** A mixer according to claim 18, wherein the intermediary channels have the same aspect ratio cross-section.

20. **(Previously presented)** A mixer according to claim 1, further comprising additional fluid routing devices connected in series.

21. **(Previously presented)** A mixer according to claim 1, further comprising a pair of inlet passages for supplying, in use, different fluids to the first channel.

22. **(Previously presented)** A mixer according to claim 21, further comprising a geometric pin between each of the fluid supply passages and the first channel.

23. **(Canceled)**

24. **(Currently amended)** A method of mixing fluid in a single layer, the method comprising the steps of:

supplying a fluid to a first channel having a cross-section of a first aspect ratio;

supplying a fluid to a second channel which has a cross-section of a second different aspect ratio and which intersects with the first channel from a first location to a second location, each location having a different transverse position and a different longitudinal position within the first channel and wherein the cross-section of the intersecting first and second channels is T-shaped for at least a portion of the intersection;

passing a portion of the fluid from the first channel into the second channel;

moving the fluid through the second channel from the first ~~point~~ location to the second ~~point~~ location; and

recombining the fluid from the second channel into a different portion of the fluid in the first channel.

25. **(Previously presented)** A method according to claim 24, further comprising the step of passing the fluid from the first and the second channel into respective intermediary channels, each of which has the same aspect ratio cross-section, prior to recombining the fluids from the first and the second channels.